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EXPLORING THE RELATIONSHIP BETWEEN SECTORAL CREDIT ALLOCATION AND NIGERIA'S ECONOMIC GROWTH

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Abstract: The banking sector remains central to economic transformation through its financial intermediation function, which mobilizes surplus funds and reallocates them to deficit sectors for productive investment. In Nigeria, deposit money banks have consistently played this crucial role by channeling credit to key real sectors such as agriculture, industry, construction, and services. The efficiency of this intermediation process is vital for capital formation, investment diversification, job creation, and ultimately, sustainable economic growth. Anchored on the endogenous growth theory, this study investigates the nexus between sectoral bank credits and economic growth in Nigeria. By examining how sector-specific credit allocation influences macroeconomic performance, the paper highlights the implications of credit flows for fostering stability, stimulating foreign and domestic investment, improving standards of living, and reducing poverty. The study underscores the strategic importance of strengthening the banking sector's intermediation capacity to drive inclusive and sustainable growth in Nigeria.

Keywords: Bank Credit, Economic Growth, Financial Intermediation, Real Sector, Nigeria

1. Introduction

In the global ecosystem, the banking sector plays a very pivotal role as the key mobilizer of financial resources and the apportionment of same through its intermediation function (FI), thereby helping to accelerate global economic growth and development. Soyibo & Adekanye (1992) stated that capital mobilization is gathering funds from excess monetary section or sector in form of savings and effective allocation of such funds to the deficit sectors to motivate investments and increase macroeconomic factors. At the forefront of the financial intermediation role of the banking sector, the deposit money banks have been an extremely habitual channel in both developed and emerging economies. It is evident that the effective and efficient operationalization of any economy is strongly linked to the strength and stability of her banking industry. According to Lucas (2010), for several years now, economists and monetary experts globally have painstakingly supported amplifying capital formations in advanced and emerging economies. This is because the accumulation of capital from the surplus units through the banking subsector and the onward appropriation of capital to the various real sectors of an

economy, namely agriculture, industrial, construction and the services sectors provide these sectors with loanable funds for further expansion, diversification of investments and job creation. Lucas (1990) also stated that real sector in any nation like Nigeria is the basic and main fulcrum by which monetary expansion and advancement are produced or crystalized. Furthermore, the endogenous theory of economic growth fittingly posits that growth in an economy is a function of the huge capital accumulation through savings and its subsequent re-investment.

The need to achieve sustained economic growth is consequent on the plethora of positive externalities that can manifest from it. These effects range from a stable macroeconomic environment, increase in foreign direct investment and foreign portfolio investment, increased job opportunities, favourable trade balance, increased standard of living, possibility of a reduced divergence between economic classes and reduction of poverty, among others. The desire for these strengthens the push by successive government in Nigeria, through policy prescriptions, to achieve semblance of economic growth.

Economic growth in Nigeria has been below potential, and not commensurable with her vast natural and human resources. Considering the period from 2011 to 2014, economic growth averaged 5 percent, year-on-year basis. In 2015, the economy contracted by 3.964 percent in the first quarter, compared to the 5.945 percent growth recorded in the fourth quarter of 2014. Further dip was experienced in the first quarter of 2016, as the economy declined to 2.112 percent. With negative growth of 0.666 percent and -1.487 percent in the second and third quarters of 2016, the Nigerian economy slipped into recession (NBS, 2016).

While effort has been made to boost the economy through policy strategies such as the Economic Recovery and Growth Plan (ERGP) of 2017, increased government spending from N7.44 trillion in 2017 to N10.59 trillion in 2020 and reduction in monetary policy rate from 14 percent in December, 2017 to 11.5 percent in January, 2021, the economy slumped, contracting by -6.104 percent and -3.40 percent in the second and third quarters of 2020, respectively (Federal Ministry of Budget and National Planning, 2020; Kyarem and Ogwuche, 2017; Uche, 2019; CBN, 2021; NBS, 2020).

Economic growth in Nigeria has mirrored movement in the international price of crude oil, making the Nigerian economy an oil-dependent economy. This suggest that, economic growth in Nigeria could only be achieved through the oil sector. With the discovery of commercial quantity of crude oil, sectors of the Nigerian economy such as agriculture, industrial and service have assumed the passenger seat in steering economic growth. Classical economists have stressed the importance of capital and bank credit in prosecuting economic growth (Arodoye and Edo, 2015). Deposit money banks credit to agriculture, industrial and service sectors could position them as leading drivers of the Nigerian economy and aid the quick process of the diversification of the Nigerian economy. Realising this, the Central Bank of Nigeria (CBN) by policy engineering, has raised the loan-to-deposit ratio (LDR) of deposit money banks to 65 percent, which necessitated a jump in deposit money banks credits from N13,086.20 billion in 2015 to N20,373.49 billion in 2020 (CBN, 2020).

In the light of this, this study examined if sectoral credit distribution by deposit money banks can spur economic growth in Nigeria. This study achieves this by structuring the paper into 5 sections. Section 1 outlines the motivating factor for this study. Theoretical and empirical reviews were presented in section 2. We outlined the methodology in section 3. Section 4 covers the results of the study and discussion. Conclusions and recommendations are offered in section 5.

2. Literature Review

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This section of the work provides a pathway through which the theoretical and empirical background underpinning the paper shall be considered, the plethora of both theoretical and empirical literature show the underlying linkages between the financial sector credit outlay to the real sector and the growth of the real sector of any economy. This survey nonetheless will appraise a handful of this theoretical and empirical literature. In furtherance, a critical explanation of the basic principles underlining this study that are indeed sophisticated to the nonexperts and amateur scholars shall be explored, concepts such as financial intermediation, capital formation and real sector remain defined as alluded to in the preamble of the study.

Theoretical Literature

Theoretically, this work is backed by an outline of literature applauding the relationship between credit apportionment to the real sectors and the performance of the real sector.

Supply Led Finance Hypothesis

The main aspect of this theory which was spread by Patrick (1966) mentioned some notable part which finance plays in motivating monetary expansion and advancement of nations globally. He posited that supply led finance or finance induced growth and development is the capacity of financial resources or capital formation to create, support and expand productive economic activities. The theory is of the view that to facilitate the growth and development of the real sector of an economy, the financial sector must first and foremost be developed to serve as the building block for the evolution of the real sector of the economy. It also stated that the presence of monetary firms helped to strengthen capital gathering from excess point in monetary sector to allocation to deficit fund demanding entrepreneurs in any nation (Arikpo & Adebesi 2017).

Demand-Following Finance Hypothesis

Resulting from the thoughts of Robinson (1952), the demandfollowing hypothesis holds that the need for financial services is propelled largely by increased economic activities. Expressed differently, the hypothesis preached that the development of the financial sector comes from increased demand for financial services which is derived from improvement in economic activities (Akbas, 2015).

As expressed by Ogbonna, Uwajumogu, Godwin and Agu (2013), the argument of the hypothesis is that economic activities influence development in the financial sector. By inference, a more developed financial sector or system is but a response to an advanced economy. For a demand-following hypothesis to hold, causality has to run from economic growth (measured using a standard index) to financial development (Kar, Nazlıoğlu and Ağır, 2011; Menyah, Nazlioglu and Wolde-Rufael, 2014).

Financial Repression Hypothesis

This concept is among the financial liberalization theory first presented by Mckinnon (1973) and Shaw (1973) and these ideas faulted overbearing impact of government in areas of regulation and interfering in effective operation of monetary sector. The proponent of the hypothesis posits that the government undue interference in the optimal operation of the financial industry should be whittled down or be removed in its entirety. That further accredited the lackluster performance of the banking industry to government regulation, fixing of interest rate and the setting up of credit limits that the banks can grant.

Deposit money banks along with other profit-maximizing based entities and equally when government interrupts the industry main operation target which is maximizing profit, these firms are rendered ineffective thereby affecting the entire economy. From the foregoing, the theory is of the view that the financial sector of any nation

should be deregulated and allowed to function within the barometer of the invisible hand market template of demand and supply.

Endogenous Growth Theory

Several economists including Romer (1986), Lucas (1988) and Rebelo (1991) articulated this theory in the 1980s and some antithesis theory to neoclassical exogenous expansion based concept that sees monetary expansion to be dependent.

Conversely, the endogenous growth theory summarily posits that economic growth is inherent and self-propelled and is not a determinant of exogenous factors, the proponents of this theory principally credited economic growth to a function of three inherent fundamental pillars which are the in-built technological advancement, capital formation and the human resource availability within the confines of the economy. The theory keenly believes that capital aggregation (formation) through the financial sector intermediation function plays a frontal role in the crystallization of economic productivity and growth.

Empirical Literature

This section of the literature review assesses earlier study on the subject matter under searchlight.

The study by Eburajolo and Aisien (2019) which focused on Nigeria, considered the effect of the distribution of commercial banks' credit to the real sector on economic growth. Using time series data, which extended from 1981 to 2015, the work probed if bank credit to the agricultural and manufacturing subsectors does enhance economic growth. Three equation were specified and analyzed using cointegration and the autoregressive distributed lag (ARDL) method. The study accounted for the role of financial sector development by fitting the variable in the specified models. From the short and long run result of the analysis carried out, commercial bank credit to the manufacturing and agricultural sector significantly affect economic growth. The growth effect of sectoral commercial banks' credit was found to be enhanced by the development of the financial sector. Oladapo and Adefemi (2015) who used the ordinary least square method found that during the intensive regulation regime of 1960 – 1985 in Nigeria, only credit to government, personal and professional had positive and significant impact on economic growth. They show by empirical investigation that, during the deregulation period of 1986 – 1995 sectoral banks' credit were insignificant in stimulating growth. However, sectoral allocation of banks' credit contributed positively to economic growth during the guided deregulation regime of 1996 – 2010.

Olusegun, Akintoye and Dada (2014) disclosed that the effect of commercial banks' credit on economic growth in Nigeria varies with the sector to which the credits were made. Sampling data from 1970 to 2011, the ordinary least squares result reveals that, previous year's credit to the service sector contributed more to non-oil gross domestic product (GDP) in comparison to current year's credit to the sector. Furthermore, increases in previous and current year's credit to other sector contract non-oil GDP. The study used identical methods on quarterly data from 1997 Q1 to 2014 Q4. Paul (2017) summarily concluded as informed by the vector error correction result that, bank credit to manufacturing, agriculture and general services are facilitators of economic growth in Nigeria. Onyia (2019) using the ordinary least squares method reported a positive and significant relationship between sectoral credit allocation and performance of the real sector in Nigeria. Odinakachi, Chris-Ejiogu and Kalu (2020) aligned partly with these findings as their ordinary least squares result suggests credit to manufacturing sector significant boost total output. In contrast, they found credit to agricultural sector to be insignificant in stimulating the Nigerian economy. In investigating the nexus between sectoral distribution of bank credit and economic

growth in Sri Lanka from 2005 to 2017, Muthusamy, Dewasiri, Weerakoon and Amarasinghe (2018) showed, using the autoregressive distributed lag (ARDL) method, that sectoral bank credits significantly affect economic growth in the short run. In the long run, it was revealed that only industrial sector credit drives economic growth, as distribution to other sectors were insignificant in impacting growth. Applying similar method, the work by Alzyadat (2021) disclose uneven impact of sectoral bank credit on non-oil GDP in Saudi Arabia from 1970 to 2019. The result of the regression analysis showed positive and significant long run impact of all sectoral credit, with the exception of the mining and agricultural sectors, on non-oil economic growth.

Yakubu and Affoi (2014) who investigated the nexus between commercial banks' credit and economic growth in Nigeria from 1992 to 2012 concluded, based on the result of the ordinary least square, that commercial bank credit contribute positively to the growth of the Nigerian economy. Studying 10 European countries in a panel framework, the analysis performed by Korkmaz (2015) using the fixed effect estimator revealed banks' credit affect economic growth, but not inflation. In a single country analysis, Adeyinka, Ojo, Abiodun and Akanmu (2018) reached similar conclusion using the ordinary least squares method as the result showed that commercial banks' credit enhances economic growth in Nigeria. Ayeomoni and Aladejana (2016) who applied the autoregressive distributed lag (ARDL) method found that, from 1986 to 2014, credit to agriculture negatively affected economic growth in Nigeria. Ume, Obasikene, Oleka, Nwadike and Okoyeuzu (2017) used the autoregressive distributed lag (ARDL) method to show that volume of banks' credit had positive and significant impact on manufacturing sector output in Nigeria from 1986 to 2013. Elijah (2019) corroborated this finding as the autoregressive distributed lag (ARDL) result revealed both short and long run positive impact of banks' credit on manufacturing output in Nigeria. Baker (2021) reported a direct and significant relationship between commercial bank credit and economic growth in Iraq using the ordinary least squares method.

Timsina (2014) indicated using ordinary least squares and granger causality test to show that private sector credit significantly stimulate the economy of Nepal only in the long run. Olowofeso, Adeleke and Udoji (2015) who used quarterly data from 2000 Q1 to 2014 Q4 argued that credit to private sector fosters economic growth in Nigeria. The fully modified ordinary least square (FMOLS) result contends that government expenditure and nominal exchange rate are positive determinant of output. They noted that, increased prime lending rate inhibited economic growth. Amoo, Eboreime, Adamu and Belonwu (2017) found similar result in Nigeria when the fully modified least squares (FMOLS) method was used. Incorporating annual data from 1993 Q1 to 2013 Q4, the result of the regression analysis disclosed that even where monetary policy, infrastructure, trade openness and investment climate are low, private sector credit enhances economic growth. Bakang (2015) empirically showed that credit to the private sector, liquid liabilities, commercial bank deposits and commercial-bank assets had positive and significant effect on economic growth in Kenya. The results draws from the use of cointegration and error correction mechanism (ECM) techniques and observations of the behaviour of the series from 2000 to 2013. The findings of Majeed and Iftikhar (2020) indicated insignificant effect of private sector credit on economic growth in Pakistan. This followed the use of the fully modified ordinary least squares (FMOLS) method as the series were sampled from 1982 to 2017.

Employing cointegration, vector error correction model (VECM) and Toda-Yamamoto techniques, Lawal, Olayanju, Ayeni and Olaniru (2019) observed absence of long run relationship between banks' credit to agricultural sector and agricultural gross domestic product in Nigeria. Among others, unidirectional causality

from agricultural credit guarantee scheme to agricultural GDP was established, as data collected from 1981 to 2015 were used.

The investigation by Abina and Obi (2020) revealed bidirectional causality between service sector contribution to gross domestic product and bank credit to service sector; bank credit to general commerce and commercial sector contribution to GPD; and production sector contribution to GDP and bank credit to production sector in Nigeria. Informed by the ordinary least square result, bank credit to the production sector, general commerce and service sector contributed positively to economic growth from 1980 to 2019. Joseph (2020) found no causality between bank credit and economic growth in Tanzania using the Granger method. He however disclosed a long run positive and significant impact of bank credit on economic growth.

Agbanike, Onwuka, Enyoghasim, Ikuemonisan, Ogwuru and Osigwe (2018) confirmed the validity of the finance-led growth hypothesis in Nigeria, with data from 1981 to 2014. The model fitted using the seemingly unrelated regression (SUR) estimator points to a positive and significant impact of bank credit to industry, agriculture, commercial and real estate and construction sectors on these sectors contribution to real GDP. Ubesie, Echekoba, Chris-Ejiogu and Ananwude (2019) presented varying conclusion using quarterly data from 2008 Q1 to 2017 Q4 and the ordinary least squares method. The regression result denotes insignificant effect of banks' credit to industrial, agricultural, wholesale and retail trade and building and construction on the sectors contribution to real GDP.

3. Materials and Method

Data

The time series for this study is secondary data sourced from the Central Bank of Nigeria (CBN) annual Statistical Bulletin. The period for which this study covered extended from 1981 to 2020. The study used real gross domestic product (GDP) in measuring economic growth. Other variables fitted in the model were Deposit Money Banks' credits to the agriculture sector, industrial sector and service sector and financial development. Due to the fact that credits are disbursed through Deposit Money Banks, the effect of credit distribution to the various sectors of the economy and credit policies of the Central Bank of Nigeria (CBN) on the Nigerian economy will depend on how developed the financial sector in Nigeria is. We accounted for this by including the level of financial development in our model. Financial development was proxied by ratio of M3 to gross domestic product (M3-to-GDP).

Methodology

The paper adopted the Ex-Post facto research design. The basis for the adoption of the design originates from the nature of the data used as they are past evolution of the variables. In investigating the effect of sectoral credit distribution of deposit money banks on economic growth in Nigeria, the analytical procedure of the paper starts off by carrying out descriptive analysis of the data. This is followed by determining the order of stability of the variables. The stability of the variables is done through unit root testing, primarily to avoid obtaining misleading estimates and reaching wrong inferences. The stationarity of the series is determined using the augmented Dickey-Fuller (ADF) (1979) test and the Kwiatkowski, Phillips, Schmidt and Shin (KPSS) (1992) unit root test. The study adopts both approaches to unit root testing in order to carryout confirmatory analysis and ensure the appropriateness of the maximum order of integration that goes into the causality test. Both tests are unique as the

hypothesis tested are exact opposites. The ADF approach tests the null hypothesis of nonstationarity, while the KPSS approach tests the null hypothesis of stationary series.

The model expressed thus is estimated when conducting the augmented Dickey-Fuller (ADF) test on the series.

$$\Delta Y_t = c + \varphi t + (\beta - 1)Y_{t-1} + \sum_{i=1}^{m} \beta_i \, \Delta Y_{t-i} + \mu_t \qquad (1)$$

In testing for unit root using the KPSS method, the following model is estimated.

$$Y_t = c + \alpha T + p \sum_{i=1}^{m} \theta_i + \mu_t \qquad (2)$$

Where;

Y = variable series

The study proceeding upon determining the order of integration of the series to cointegration determination. The argument of the cointegration test is that, if the linear combination of two non-stationary series or I(1) series produce errors that are stationary or I(0), then a long run equilibrium relationship exists between the non-stationary series. The paper applies the Engel and Granger (1987) two-step method over the Johansen and Juselius (1990) method in testing for cointegration between the series, as the specified model is a single equation model. The method involves estimating a static regression model using the ordinary least squares methods (OLS) and conducting a unit root test on the extracted residuals. If the residuals are found to be stationary in levels, then the series are cointegrated. However, since the residuals are the product of an estimation, the critical values of the Augmented Dickey-Fuller (ADF) test cannot be relied upon. The study adopts the critical values provided by Engel and Shoo in testing the null hypothesis of level relationship between the series. The Toda and Yamamoto (1995) (TY) granger non-causality test is adopted in testing the supply-led and demand-following hypotheses in Nigeria. The Toda and Yamamoto (1995) causality approach is chosen over the traditional Granger test (1969) as the former is flexible as it allows for causality testing irrespective of the integration process of the series or whether cointegration exists between the series, unlike the Granger (1969) causality test which accommodates only level series (Diabate, 2017; Inusah, 2018). The model specification for the Toda and Yamamoto (1995) granger non-causality test is given thus;

$$Y_t = a_0 + \sum_{i=1}^{k} a_i Y_{t-i} + \sum_{i=k+1}^{k+dmax} \emptyset_i Y_{t-i} + \sum_{j=1}^{k} a_j X_{t-j} + \sum_{j=k+1}^{k+dmax} \emptyset_j X_{t-j} + \epsilon_{1t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots . (3)$$

$$X_t = \delta_0 + \sum_{i=1}^{k} \delta_i X_{t-i} + \sum_{i=k+1}^{k+dmax} \omega_i X_{t-i} + \sum_{j=1}^{k} \delta_j Y_{t-j} + \sum_{j=k+1}^{k+dmax} \omega_j Y_{t-j} + \epsilon_{2t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

Where; Y_t and X_t are variables in the system;

a_0, ω, δ, ∅ are coefficients to be estimated which provide information on the direction of causality. $dmax$ is the maximum order of integration of the system; and k represents the optimal lag length.

The study, which is hinged on the finance-led and demandfollowing hypotheses, follows the works of Paul (2017) and Odinakachi, Chris-Ejiogu and Kalu (2020) in specifying the functional relationship between sectoral credit

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distribution and economic growth in Nigeria. This study makes improvement and structural changes to the models specified by the aforementioned scholars by considering sectoral credit to the industrial sector and accounting for the role of financial development in the growth effect of deposit money banks' credits.

The model is given as;

$$RGDP = f(CRAGRI, CRIND, CRSERV, FD) \quad (5)$$

Where:

$RGDP$ is real gross domestic product, $CRAGRI$ is deposit money banks' credit to the agricultural sector, $CRIND$ is deposit money banks' credit to the industrial sector, $CRSERV$ denotes deposit money banks' credit to the service sector, and FD is financial development (measured using ratio of M3-toGDP).

In log-linear econometric form, equation (5) is rewritten as;

$$RGDP_t = \phi_0 + \phi_1 lnCRAGRI_t + \phi_2 lnCRIND_t + \phi_3 lnCRSERV_t + \phi_4 FD_t + \varepsilon_{1t} \quad (6)$$

where:

ϕ_0 constant of the model,

ϕ_1 -ϕ_4 are coefficients to be estimated.

From economic postulations, we expect ϕ_1 -ϕ_4 > 0.

4. Results and Discussions

Table 1: Summary Statistics

Var.	Mean	Max.	Min.	Kurtosis	JB	Prob	Obs.
$RGDP$	36843.40	71387.83	16048.31	1.79441	5.0836	0.0787	40
$CRAGRI$	160.9836	1049.678	0.5906	6.0449	39.3157	0.0000	40
$CRIND$	1474.386	7576.764	2.7500	3.9027	16.2248	0.0003	40
$CRSERV$	1968.519	7664.238	2.0200	2.1267	6.0153	0.0494	40
FD	15.2332	24.8952	8.4642	1.7319	5.1992	0.0743	40

Note: JB = Jarque-Bera Statistics

Source: Own Compilation using E-Views 10

A review of the descriptive nature of the data for this study is critical in the sense that it avails us the opportunity to analyze the trend, normality as well as the central tendency of the variables among others. An evidential report drawn from the descriptive statistics in the table above reveals the mean values of N36844.40 billion, N160.9836 billion, N1474.386 billion, N1968.519 billion and 15.2332 percent of gross domestic product for real GDP, deposit money banks' credit to the agricultural sector, deposit money banks' credit to industrial sector, deposit money banks' credit to services sector and financial development in that order. Their maximum and minimum values of the series as shown in parenthesis are (maximum N71387.83 billion and minimum N16048.31 billion for real GDP), (maximum N1049.678 billion and minimum N0.5906 billion for CRAGRI), (maximum N7576.764 and minimum N2.750 billion for CRIND), (maximum N7664.238 and minimum N2.020 billion for CRSERV) and (maximum 24.8952 percent and 8.4642 percent of GDP for FD). A further assessment of the kurtosis of the variables indicates that the variables of banks' credit to agricultural and industrial sectors follow a leptokurtic distribution as they have excess positive kurtosis. This means that, over the study period there has been broader

fluctuations in deposit money banks' credit distribution to the agricultural and industrial sectors. In contrast, we discover that the variables of real GDP, deposit money banks' credit to the services sector and measure of financial development (ratio of M3-to-GDP) have negative excess kurtosis as they follow a platykurtic distribution. Similarly, the Jarque-Bera (JB) statistics judging by the variables individual probability values reveals that real GDP and financial development are normally distributed, while deposit money banks' credit to agricultural, industrial and service sectors are not normally distributed as deduced by their respective JarqueBera statistics.

Unit Root

Given the inherent non-stable characteristics of the data set for this work, thus, the assessment of the unit root of these variables is necessary in order not to carry-out a spurious analysis and this work adopts the ADF and KPSS unit root tests to determine the stability of the variables. The empirical results of the unit root test carried out at 5% level are as tabulated below.

Unit Root Test

Table 2: Unit Root Test

Variables	ADF		KPSS		Decision
	Level	1st_diff.	Level	1st_diff.	I(d)
$lnRGDP_t$	-1.0540	-3.7731***	0.7349	0.2925***	I(1)
$lnCRAGRI_t$	-1.0069	-7.1200***	0.7680	0.2084***	I(1)
	-0.6492	-4.1474***	0.7622	0.1703***	I(1)
$lnCRIND_t$	-0.9043	-8.9954***	0.7411	0.1778***	I(1)
$lnCRSERV_t$					
FD_t	-0.7152	-5.7156***	0.6418	0.1690***	I(1)

Note: The Schwarz Bayesian information criterion was used for lag selection. Test statistics were reported. *, ** and *** denote significance at 10%, 5% and 1% levels, respectively for ADF. ADF test, the null hypothesis: Series has a unit root. KPSS test, the hypothesis: series is stationary.

Source: Author's Computation (2021)

An analysis of the unit root test results above indicates that all the variables captured in the model comprising $InRGDP_t$, $lnCRAGRI_t$, $lnCRIND_t$, $lnCRSERV_t$ and FD_t were nonstationary at levels connoting that all the series have unit root at levels as ascertained by the unit root test result. However, after the first difference of the variables, they all attained stationarity at 5% probability level. Consequently, given that the variables are now stationary and integrated of order one I(1), therefore this study is well-positioned to undertake a co-integration evaluation of the variables to establish their long-run relationship using the Engle and Granger (1987) two-step cointegration method.

Cointegration

The outcome of the cointegration test for which the Engle and Granger (1987) two-step technique is used is summarily presented in Table 3 below. The reason for the use of Engle and Granger (1987) method flows from the integration process of the variables as they were all stationary in first difference, that is, I(1). Reported in the Table 3 are the test statistics and critical values estimated using the $egranger$ command in STATA

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16.0.

Table 3: Result of Engle and Granger Co-integration Test

Variable	Z(t)
ECM_t	-3.593
Critical Value	
1%	-5.548
5%	-4.783
10%	-4.409

Note: Null hypothesis: Series are not cointegrated.

Source: Author's Computation (2021)

Table 3 shows that the test statistics value of -3.593 is less than the 5 percent critical value of -4.783 in absolute terms. In light of this, the study fails to reject the null hypothesis of no level relationship. This implies that the residual (ECM_t) is not stationary in level and there is no long run equilibrium relationship between real gross domestic product, deposit money banks' credit to the agricultural sector, industrial sector, service sector and financial development.

Causality Test

Table 4: Toda and Yamamoto Granger Non-Causality Test Results

Variables	Df	Direction of Causality	Chi-Sq.[1]	Chi-Sq.[2]
RGDP CRAGRI	2	No Causality	0.4627	0.8648
RGDP CRIND	2	No Causality	0.3710	0.8762
RGDP CRSERV	2	No Causality	0.9590	0.4011
RGDP FD	2		1.9183	4.8133*
CRAGRI CRIND	2	$Real\_GDP \longrightarrow FD$ $CRAGRI \leftrightarrow CRIND$	6.6637**	8.7072**
CRAGRI CRSERV	2	No Causality	3.8355	2.5089
CRAGRI FD	2	No Causality	0.6600	3.0330
CRIND CRSERV	2	No Causality	2.7909	3.4076
CRIND FD	2	No Causality	3.2454	0.0587
CRSERV FD	2	$FD \longrightarrow CRSERV$	9.9175***	1.0629

Note: *, ** and *** denote rejection of null hypothesis at 10%, 5% and 1% asymptotic p-value. Df = degree of freedom.

Source: Own computation using E-Views 10

Table 4 reveals predominantly absence of causal link between paired series. From the result of the Toda and Yamamoto granger non-causality test, the supply-leading and finance-led hypotheses does not hold in Nigeria as we found absence of causality running from financial development to economic growth and bank credit to

economic growth, respectively. Our findings validate the findings of Joseph (2020), but failed to align with the discoveries of Agbanike, Onwuka, Enyoghasim, Ikuemonisan, Ogwuru and Osigwe (2018) whose findings support the finance-led growth hypothesis in Nigeria. However, empirical results support the existence of demand-following hypothesis as a unidirectional causality running from real gross domestic product to financial development is found to exist. Further examination reveals bidirectional causality between deposit money banks' credit to service sector and deposit money banks' credit to industrial sector. The causation between deposit money banks' credit to service sector and financial development was unidirectional, as causality is found to run from financial development to deposit money banks' credit to the service sector.

5. Conclusion and Recommendations

The paper concerned itself with the analysis of sectoral deposit money banks' credit distribution and economic growth in Nigeria. The result of our analysis indicates that causality runs from economic growth to financial development in Nigeria for the duration of the study. The result also indicates financial development granger because deposit money banks credit to the service sector. Our results indicate that demand-led hypothesis holds in Nigeria, leading to the conclusion that development in the Nigerian financial sector is propelled by buoyancy of the Nigerian economy.

We make the following recommendations as informed by our findings.

i. The monetary authorities should through its regulatory power mandate deposit money banks in Nigeria to give out loans to key sector investors at an interest rate in the range of 7 – 14 percent.

ii. A real sector credit scheme should be implemented by the Central Bank of Nigeria as part of her development finance programmers wherein credit facilities are distributed to investors in the real sector, particularly those in the agricultural sector.

iii. A policy strategy towards growing the Nigerian economy, through the use of fiscal policy, monetary policy or exchange rate policy, should be pursued as such will speed up the development of the financial sector and help drive the local economy through injection of credit.

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